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| 10/086,683 | 03/04/2002 | Hiroaki Matsuda | 220228US0 | 2827 |

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| EXAMINER |
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RODEE, CHRISTOPHER D

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| ART UNIT | PAPER NUMBER |
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1756

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DATE MAILED: 05/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/086,683

Applicant(s)

MATSUDA ET AL.

Examiner

Christopher D RoDee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) 7 and 8 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☒ Claim(s) 1-8 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5, 6, 7.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-6, drawn to a carrier and developer, classified in class 430, subclass 111.1.
- II. Claim 7, drawn to a method, classified in class 430, subclass 125.
- III. Claim 8, drawn to an image forming apparatus, classified in class 399, subclass 359.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case the carrier as claimed can be used in another and materially different process such as mixing the carrier particles with a thermosetting polymer and extruding the mixture to form a solid object having color and/or conductivity as a result of the carbon black-containing carrier particles.

Inventions II and III are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the process can be practiced by hand. In hand operation the artisan would sprinkle developer held in a jar over the latent image on the image forming member, contact the toned image with paper so that

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toner is transferred to the paper in either the imaged or unimaged areas of the image forming member, brushing the remaining developer from the surface of the image forming member and returning the collected developer to the jar. Additionally, applicants are advised that the developer does not provide a material limitation to the apparatus because it is a material worked upon by the apparatus. It passes into and out of the apparatus during the normal and intended use of the apparatus and does not provide any structural limitation to the claimed invention.

See MPEP 2114 and 2115.

Inventions I and III are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, invention I has separate utility such as for toning an imaging element having selective adhesivity but no charging characteristics or as a colored and/or conductive filler in a plastic article, as discussed above. See MPEP § 806.05(d). Note that the developer does not provide a material limitation to the apparatus because it is a material worked upon by the apparatus. It passes into and out of the apparatus during the normal and intended use of the apparatus and does not provide any structural limitation to the claimed invention. The structure of the apparatus is the same whether or not the developer is present. See MPEP 2114 and 2115.

Information Disclosure Statement

The information disclosure statement filed 30 October 2002 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each U.S. and foreign patent; each publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered for US Patent 6,406,826.

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The six Information Disclosure Statements cumulatively listing 79 separate items have been reviewed and all citations have been considered except for the above noted patent because no copy of these applications was submitted as required by 37 CFR 1.98(a)(2)(i). Additionally, the majority of references cited appear to be unrelated to the claimed invention. The claims are directed to a carrier particle, typically for a two-component developer. Cited documents are directed to carriers but also toners (e.g., 09/891652, 10/098556, 09/820609, 10/114056), photoreceptors (e.g., 09/985375, 09/985348, 09/734718, 10/102867, 09/985368, 09/985347), external additives (09/843357), consumption information management apparatus (09/963429), a charger (10/155111), a thermosetting recording medium (09/867557), an internet facsimile gateway device (09/656414), a powder replenishing device (09/943505), and other devices (09/953922) that appear unrelated to the instant invention. It is unclear why these items were cited because they do not appear to be "material to patentability" of the claimed invention (37 CFR 1.56).

MPEP 2004, particularly section (13), sets forth guidelines to aid applicants in their duty of disclosure. In this section it states,

"It is desirable to avoid the submission of long lists of documents if it can be avoided. Eliminate clearly irrelevant and marginally pertinent cumulative information. If a long list is submitted, highlight those documents which have been specifically brought to applicant's attention and/or are known to be of most significance. See *Penn Yan Boats, Inc. v. Sea Lark Boats, Inc.*, 359 F. Supp. 948, 175 USPQ 260 (S.D. Fla. 1972), aff'd, 479 F.2d 1338, 178 USPQ 577 (5th Cir. 1973), cert. denied, 414 U.S. 874 (1974)."

In an effort to clarify the "material" nature of these references to the patentability of the instant claims applicants are *requested* to specify why each of the above noted applications was

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cited and to highlight those documents of most significance to the instant claims, particularly to the claims directed to the elected invention.

Specification

Note the misspelling of "shown" on specification page 19, line 11.

Claim Rejections - 35 USC §§ 102 & 103

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 4, and 6 are rejected under 35 U.S.C. 102(e) as being anticipated by Matsuda *et al.* in US Patent 6,534,232.

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The applied reference has a common assignee and inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Matsuda exemplifies a carrier in Preparation of Carrier D (cols. 11-12) having a magnetite core and coated with a silicone resin and carbon black BP-2000, which is the same carbon black as exemplified in the instant specification as meeting the requirements of "carbon particles" in the instant claims. Thus Matsuda's carrier appears to have the requisite number-average particle diameter of the instant claims. See Example 1 on specification pp. 18 and 19 and Table 4 on page 28, which prepares the carrier in substantially the same manner as the Carrier D formulation in the reference. This reference carrier has the same specific resistance ($2.00 \times 10^{13} \Omega\text{cm}$) as that of specification Example 1. This carrier is mixed with a dry toner to form a two-component developer (see Comparative Examples 7-11). The core for the carrier in Matsuda is a magnetite, which is disclosed in the instant specification as providing the results of the instant invention (see spec. p. 7, l. 26). This carrier has an average particle diameter of 44 μm (col. 10, l. 4).

Claims 1, 4, and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 2001-027829.

This JP document is derived from the same parent application as Matsuda described above. Based on this common lineage, the disclosures are considered to be the same. The Examiner notes that the same example discussed in the US Patent above appears to be

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present on page 6 of the JP document. Because of the same disclosure this reference is applicable for the same reasons as given for Matsuda above.

Claims 1 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Yoshino *et al.* in US Patent 5,849,448.

Yoshino exemplifies carriers in the Examples formed from a ferrite core and coated with a resin comprising carbon black. The carbon black has an average particle size of 25 nm (0.025 μm) as seen in Example 1. Also note Example 4 which uses carbon black with an average particle size of 30 nm. The carrier has an average particle diameter of 30 to 100 μm , with 50 μm exemplified in Example 1. The reference does not specify the basis of the average particle size for the carbon black, but the reference does specify that number-average is used for determination of the particle size of the other additives to the resin coating layer (col. 5, l. 33 - col. 6, l. 4). Thus it appears that the number-average basis is used for the carbon black as well.

Claims 2, 3, and 5 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Matsuda *et al.* in US Patent 6,534,232.

Claims 2, 3, and 5 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over JP 2001-027829.

These references were described above. The reference does not specifically discuss the induced magnetic moment of the carrier, but the carrier core in each of these documents is a preferred magnetic material in the instant invention (see spec. p. 7, l. 26). This carrier core of the reference is also treated with the same coating liquid in the same amounts as used in the instant specification Example 1. Based on the fact that the core of the reference is a preferred

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core of the instant invention and that the core is treated with the same coating solution as used in the instant specification, it appears that the core would inherently have the same magnetic moment as claimed.

Additionally, because the reference and the instant specification disclose coating by the same process (e.g., coating with a fluidized bed having a rotary bottom disk to form a vortex of the cores) followed by spraying the coating solution, then heating at 300 °C for 2 hours to give the same resistance characteristics as claimed, it appears that the carrier of the reference inherently has the claimed particle size characteristics as claimed.

When the reference discloses all the limitations of a claim except a property or function, and the examiner cannot determine whether or not the reference inherently possesses properties which anticipate or render obvious the claimed invention an alternative section 102/103 rejection is proper as the Examiner has basis for shifting the burden of proof to applicant. *In re Fitzgerald*, 205 USPQ 594 (CCPA 1980).

Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshino *et al.* in US Patent 5,849,448 in view of Shintani *et al.* in US Patent 5,204,204 and further in view of *Handbook of Imaging Systems*, to Diamond, pp. 222-224.

Yoshino was described above. This rejection is applied in the event the reference does not identically disclose a carbon black particle size in number-average basis within the scope of the claims. Additionally, the rejection addresses the particle size distribution, specific resistance, and induced magnetic moment of the carrier particle as claimed because these features are not disclosed by Yoshino.

Shintani teaches that it is advantageous to minimize the particle size distribution of resin coated carrier particles. Specifically, Shintani teaches carriers having average particle sizes of

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from 40 to 60 μm , less than 10 volume % of particles having a size below 31 μm , and a bulk density 2.45 to 2.65 g/cc (col. 3, l. 54-56; col. 6, l. 66 - col. 7, l. 2). These characteristics minimize the formation of aggregates having a size of 62 μm or greater (col. 7, l. 3-23) and reduce carrier fogging, adhesion of the carrier to the surface of the photoconductor, and character voids (col. 7, l. 3-7).

Diamond teaches that ferrite carriers typically have a resistance in the range of from 10^7 to 10^{11} Ωcm and a saturation magnetization of from 30 to 70 emu/g. The saturation magnetization would appear to be substantially the same as the claimed induced magnetic moment given the substantial force applied for the claim's measurement at 1 kOe.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to produce the carrier of Yoshino with a narrow particle size distribution because Shintani states that narrow particle size distributions improve fogging characteristics, reduce carrier adhesion to the surface of the photoconductor, and reduce carrier voids. Specifically, Shintani teaches that less than 10 volume % of carrier particles having a size below 31 μm give the results describes. This clearly suggests that the number of particles smaller than 31 μm as well as smaller than the average size of 40 to 60 microns should be minimized. Similarly, the reference teaches that particles larger than the average sizes, such as at 62 μm and including aggregates, should be minimized to obtain the benefits noted.

The artisan would have also found it obvious to produce the carrier of Yoshino with the resistance and magnetization characteristics discussed by Diamond because these are disclosed as being within the area of current interest to the artisan. The artisan would thus have found it obvious to use resistance and magnetization characteristics within the disclosure of Diamond in order to optimize the carrier's properties.

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Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher D RoDee whose telephone number is 703 308-2465. The examiner can normally be reached on most weekdays from 6 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 703 308-2464. The fax phone numbers for the organization where this application or proceeding is assigned are 703 872-9310 for regular communications and 703 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308-0661.

cdr
May 23, 2003


CHRISTOPHER RODEE
PRIMARY EXAMINER